

Amanda R Vinogradov. Evidence-Based Veterinary Medicine Education in the U.S. and Canada: Roles for Librarians. A Master's Paper for the M.S. in L.S degree. April, 2011. 44 pages. Advisor: Joanne Gard Marshall

This study describes the roles of veterinary librarians in Evidence-Based Veterinary Medicine (EBVM) education. An online survey, with questions adapted from a previous survey of dental librarians, was distributed to veterinary librarians in the U. S. and Canada. It received a 78% (n=25) response rate. The results of this survey revealed that veterinary librarians are involved in a variety of roles within EBVM education. The most frequently cited barrier to involvement in EBVM education was a low level of interest from the veterinary faculty, students, or school. Although the majority of respondents reported feeling competent about their ability to support EBVM education, several suggested that there was a need for more continuing education opportunities for librarians related to EBVM.

#### Headings:

Veterinary medical education

Veterinary librarian

Evidence Based Veterinary Medicine (EBVM)

Evidence Based Practice (EBP)

Questionnaire

EVIDENCE-BASED VETERINARY MEDICINE EDUCATION  
IN THE U.S. AND CANADA: ROLES FOR LIBRARIANS

by  
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Approved by

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Joanne Gard Marshall

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## **Introduction**

The purpose of this study is to assess the status of veterinary librarians' roles in evidence-based veterinary medicine (EBVM) education. The study surveyed veterinary librarians in the U. S. and Canada in order to answer the following questions: 1) what level of knowledge do veterinary librarians have of EBVM, 2) how do veterinary librarians perceive EBVM, and 3) what level of involvement do veterinary librarians have in EBVM education. The primary investigator found no previous empirical studies on this topic currently published in the literature.

The phrase "evidence-based medicine" (EBM) has been used since the early 1990's to describe a paradigm shift taking place in medicine. Traditionally, physicians have based medical decision-making on "clinical experience...pathophysiologic rationale...medical training and common sense" (Evidence-Based Medicine Working Group, 1992).

In contrast, EBM de-emphasizes the reliance on these traditional assumptions and stresses the importance of independently assessing the evidence. EBM does not imply a rejection of what one can learn from colleagues who may have years of experience in techniques that cannot be learned from formal scientific investigation. EBM does suggest that physicians should consult the literature and be able to appraise both the methodology and results of a study. Practicing EBM requires physicians to learn new skills in order to apply the formal rules of evidence in evaluating the literature (Evidence-Based Medicine Working Group, 1992).

The process of EBM has been formalized into the following five steps: 1) create a focused and answerable question from the case, 2) search for evidence using appropriate resources, 3) critically appraise the evidence, 4) apply results to a current practice, and 5) assess the outcome of the practice and modify if necessary (Cook, Jaeschke, & Guyatt, 1992; Gray & Pinson, 2003). Librarians can participate in all but the fourth step, which requires clinical experience (McKibbin & Bayley, 2004). EBM can now be found in many fields of healthcare and other professions, including library science (Eldredge, 2000) (Gu, 2010, p. 4-6).

### **EBM and Veterinary Medicine**

The veterinary profession has begun to apply the EBM concept to veterinary medicine. In 2003, the EBVM standard was developed from the EBM standard (Cockcroft & Holmes, 2003). The practice of EBVM is defined as "the use of the current best evidence in making clinical decisions" (Cockcroft & Holmes, 2003). The Evidence Based Veterinary Medicine Association (EBVMA), formed in 2004, states that while EBVM and EBM are fundamentally the same concept, there are significant differences between the veterinary medical profession and the human medicine profession that make EBVM particularly challenging in practice (Evidence-Based Veterinary Medicine Association, 2010). These differences are also cited as the reasoning behind the less exacting standard for EBVM in comparison to EBM (Cockcroft & Holmes, 2003). For example, Cockcroft suggests that EBVM does not currently have the same amount of evidence or resources to draw on and its literature base is much smaller (as cited in Pelzer, 2006). Implementation of EBVM also requires veterinarians to find relevant evidence in supporting the care of several species (Evidence-Based Veterinary Medicine

Association, 2010). While many are advocating for veterinarians to implement EBVM in research and clinical practice, these factors present significant barriers to the achievement of this goal. Additionally, EBVM requires veterinarians to develop new skills in question development, literature searching, and critical appraisal (Cockcroft & Holmes, 2003).

### **EBM, Veterinary Medicine, and Roles for Librarians**

Librarians have an important opportunity to contribute to the adoption of EBVM in their institutions. Previous studies have indicated that librarians are involved in many aspects of veterinary medical education, (Bruce, 1992; Fajt, Brown, & Scott, 2009; Olmstead, et. al, 2001; Kok, 1998; Pelzer, 1998; Pelzer, 2006). However, the researcher found no empirical studies in the literature on the status of veterinary librarian's knowledge of EBVM, their perceptions of EBVM, or their current involvement in EBVM education.

## **Literature Review**

### **Evidence Based Medicine and Roles for Librarians**

Librarians have been heavily involved in the development and implementation of EBM. While some have stated that librarians should only be involved in the second step of the EBM process, Haines argued as early as 1994 that librarians should not simply “play only a supporting role” in EBM (Eldredge, 2000; Haines, 1994). In fact, McKibbin and Bayley (2004) argued that librarians can participate in all but the fourth step of the EBM process. The fourth step would require clinical expertise. McKibbin and Bayley (2004) also argued that librarians could support the EBM education of health sciences students. Similar arguments had been made previously (McCarthy, 1996; Scherrer & Dorsch, 1999).

Librarians have had a unique opportunity to be involved in EBM education and demonstrate the value of EBM education in a variety of settings. For example, librarian expertise in EBM is now being used to assist in the development of patient safety guidelines (Garcia & Wells, 2009). These developments suggest that librarians should market the value of their work in EBM education (Rose, 1998). This can only be done with good evidence. There have been many individual case reports on the involvement of librarians in EBM as well as a few empirical studies (Bradley, Rana, Martin & Schumacher, 2002; Brown & Nelson, 2003; Geyer & Irish, 2008).



## **Evidence Based Veterinary Medicine and Roles for Librarians**

Librarians are involved in many aspects of veterinary medical education, including bibliographic instruction, clinical librarian rotations, and other aspects (Bruce, 1992; Fajt, Brown, & Scott, 2009; Olmstead, et. al, 2001; Kok, 1998; Pelzer, 1998; Pelzer, 2006). As the veterinary profession as a whole begins to incorporate the ideas found in EBM into veterinary education and practice, veterinary librarians have the opportunity to participate in developing educational opportunities for veterinary students, faculty, and practitioners in EBVM skills.

As early as 1980, Texas A&M veterinary librarians have been assigned to a clinical librarian position on rotation with a small animal clinic. This clinical rotation is similar in nature to those provided by clinical medical librarians. The librarians note that an important aspect of the rotation is that it “enables students to formulate and refine clinical questions, and it makes them evaluate the quality of retrieved information” (Olmstadt, W., Foster, C. L., Burford, N. G., Funkhouser, N. F., & Jaros, J., 2001).

Veterinary professionals themselves have emphasized the importance of learning EBVM during case-based pharmacology rounds as a means to improve EBVM in practice (Fajt, V. R., Brown, D., & Scott, M. M., 2009). Several books and articles have been written by veterinary practitioners and researchers about EBVM, but the researcher did not find articles in which these professionals engaged in a significant discussion of librarians as part of the EBVM educational process (Hardin, L. E. & Robertson, S., 2006; Kastelic, J. P., 2006; Schmidt, P. L., 2007; Cockcroft & Holmes, 2003).

## **Importance of Study**

Veterinary librarians have the opportunity to use their professional knowledge in support of veterinary education in EBVM. However, there have been no empirical studies conducted to investigate the current role of veterinary librarians in EBVM education. This study investigates the involvement of veterinary librarians in EBVM education and their perception of EBVM by conducting online questionnaires among veterinary librarians who serve veterinary programs in the U.S. and Canada.

Results from this online survey are relevant to both the veterinary and library professions. This study could identify potential educational needs of both veterinary librarians and library science students interested in veterinary librarianship. It could also provide the veterinary profession with further knowledge about EBVM education and the value of librarian support in this endeavor.

## **Methods**

### **Study Rationale**

The Institutional Review Board (IRB) at the University of North Carolina at Chapel Hill (UNC-CH) approved the survey methodology used in this study. A confidential online survey was sent to veterinary librarians in the U. S. and Canada in order to assess the role of veterinary librarians in EBVM education. One librarian was chosen from each of these institutions by using the Medical Library Association (MLA) directory to acquire email contact information. Where there were multiple librarians listed for a single institution, the researcher chose the librarian listed as a veterinary librarian or, if one was not specified, the first listed librarian. The study surveyed veterinary librarians in the U. S. and Canada in order to answer the following questions: 1) what level of knowledge do veterinary librarians have of EBVM, 2) how do veterinary librarians perceive EBVM, and 3) what level of involvement do veterinary librarians have in EBVM education. These research questions were adapted from a previous study of the role of dental librarians in evidence-based dental education (Gu, 2010).

The survey questions were also adapted from the previous survey of dental librarians (Gu, 2010). In order to better compare the results of this study to the results of Gu's study, the target population was limited to veterinary librarians in the U. S. and Canada. A comparison of the two studies was desired in order to investigate similarities and differences between dental librarian and veterinary librarian involvement in

evidence-based educational opportunities in their respective disciplines. If similarities are found, then further collaboration or discussion between these groups might be beneficial.

Gu's survey questions were reviewed by selected veterinary librarians, who agreed that with alterations Gu's survey questions would be applicable to veterinary librarians and EBVM education. Gu's survey questions were then altered to better fit veterinary librarianship. For the question determining the nature of EBVM opportunities available to DVM students, the "standalone for credit course" option was further broken down into "standalone for credit course (selective)" and "standalone for credit course (elective)". Membership in the Evidence-Based Veterinary Medicine Association was included as an additional option in another question. Additionally, all instances of "evidence-based dentistry" were changed to "evidence-based veterinary medicine".

## **Subject Recruitment**

The target population of this study includes academic librarians who provide service to Doctor of Veterinary Medicine (DVM) programs in the U.S. and Canada. Each potential participant was chosen from an institution accredited by the American Veterinary Medical Association (AVMA). Using both the AVMA accredited schools list and the Medical Library Association (MLA) veterinary library directory, the researcher determined that there were 33 AVMA accredited veterinary schools in the U. S. and Canada. As the study is intended to establish knowledge about the involvement of veterinary librarians in EBVM education, current employment as a veterinary librarian is a requirement for participation. However, it is assumed that every potential participant in the population is a currently employed veterinary librarian. Kristine Alpi and Carol

Vreeland, veterinary librarians at North Carolina State University (NCSU), were involved in pre-testing the survey and have thus been excluded from the study.

The official website of the Medical Library Association (MLA) Veterinary Libraries Section provides a list of veterinary libraries with contact information for the veterinary librarians in the U.S. and Canada (<http://www.vmls.mlanet.org/index.htm>). By using the contact information provided by the MLA Veterinary Libraries Section, this study should reach the majority of the target population. This method of subject recruitment provided the study with a total of thirty-three potential participants.

Because of the small size of the target population, no sampling was conducted. A high response rate was achieved by sending a pre-notification message (Appendix B). No email messages were bounced back. The contact information provided on the MLA Veterinary Libraries Directory was verified on institutional web pages. One potential participant asked to withdraw from the study due to the fact that their job no longer involved veterinary librarianship. The final count of potential participants was thirty-two.

## **Survey Development**

This study relied on an adapted version of Xiaomei Gu's study, "Librarians' Roles in Evidence Based Dentistry Education in the U. S. and Canada" (Gu, 2010). Her survey questions on dental librarianship and evidence-based dentistry (EBD) education were modified to reflect the field of veterinary librarianship and evidence-based veterinary medicine education. In order to ensure this, the survey was pre-tested with Kristine Alpi, Carol Vreeland, and Joanne Marshall. Kristine Alpi, who is the director of the NCSU veterinary library, also made suggestions for better adapting the survey to veterinary librarianship. The questionnaire (Appendix A) contains a total of 13 multiple-

choice questions and one open-ended response question. Like Gu's survey, the question categories include "basic work experience, involvement in [EBVM] education, and training on and perceptions of [EBVM]" (Gu, 2010).

## **Survey Distribution**

The survey was programmed and distributed online through Qualtrics (Provo, UT). One week after pre-notification email messages were sent, the Qualtrics Survey Mailer feature sent a survey invitation email containing a unique survey URL to each potential participant (Appendix C). A first reminder message was sent one week later to those that had not responded. A final message was sent six days later (one day before closing the survey) with a deadline for survey completion.

## **Data Analysis**

Qualtrics was used to generate qualitative data for the multiple choice questions. Responses to the open-ended questions and optional text entries were analyzed for content. They were then placed in appropriate categories by topic, such as barriers to EBVM involvement or roles in teaching EBVM to students. The results of this study were compared to Xiaomei Gu's study of librarian roles in evidence-based dentistry (Gu, 2010). Further content analysis was used to compare the responses to the open-ended question in this study with the responses to the nearly identical open-ended question in Xiaomei Gu's study.

## **Results**

### **Survey Response Rate**

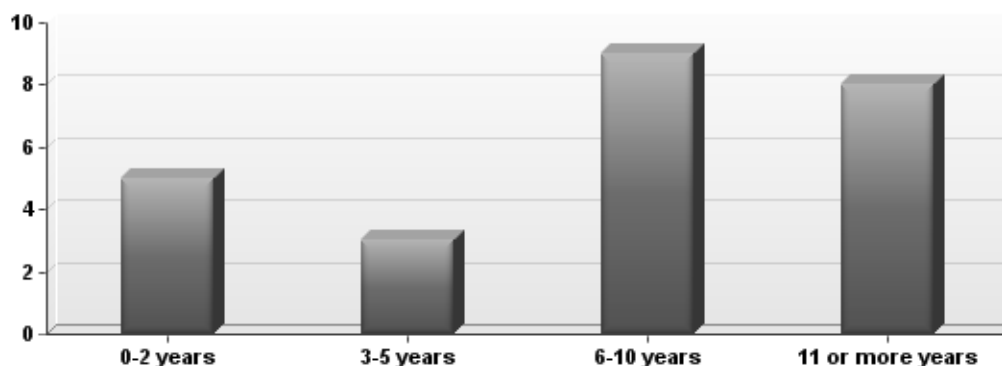
Out of 33 potential survey participants, one was found to be ineligible due to the fact that their job responsibilities no longer included veterinary librarianship. This person was withdrawn from the study. Twenty-five veterinary librarians responded out of the remaining 32 potential participants, yielding a response rate of 78%. These 25 participants came from 25 different institutions in the U.S. and Canada. Gu's study had a response rate of 71% with 46 out of 65 dental librarians responding to the survey (Gu, 2010, p. 15). All of the following figures show the number of respondents on the vertical axis.

### **Participant Background**

Nine participants(36%, n=9/25) reported having worked in their current libraries for six to 10 years. Eight participants (32%) reported 11 or more years, five participants (20%) reported zero to two years, and three participants (12%) reported three to five years. A majority of the participants (76%, n=19) responded that they also serve as the primary contact librarian for programs other than veterinary medicine. Six participants (24%) serve as primary contact librarians for DVM programs only.

In Gu's study, more than half of the dental librarians had worked in their current library for 11 or more years (Gu, 2010, p. 15). A larger majority (91%) of dental

librarians than veterinary librarians reported serving as primary contact librarians for programs other than a Doctor of Dental Surgery (DDS) program (Gu, 2010, p. 15).



**Figure 1:** Number of years that the participants have worked in their current library.  
See Also: Appendix A contains the complete questionnaire.

## **EBVM Educational Opportunities for DVM Students**

Twenty-four out of 25 participants responded to the question regarding the kinds of EBVM educational opportunities offered to DVM students at their respective institutions. The most frequently cited educational opportunity was “the principles of EBVM are integrated throughout the curriculum” (71%, n=17/24). One-time workshops were the least cited with three participants (13%) reporting this as an option for DVM students. Six participants (25%) reported that standalone EBVM courses are available at their institution, with five respondents reporting “standalone for-credit course (selective)”, one respondent reporting “standalone for-credit course (elective)” and no respondents reporting “standalone non-credit course”. Respondents reporting a standalone EBVM course offering at their institution were then asked if students were required to take the standalone course. Two respondents answered “yes”, three answered



“no”, and one answered “do not know”. Seven respondents (29%) also cited “other (specify)”, but no additional educational opportunities were identified after content analysis.

Similar results were reported in Gu's study. The majority of dental librarians in Gu's study cited an integration of EBD principles throughout the curriculum (Gu, 2010, p. 16). However, a larger percentage of dental librarians than veterinary librarians reported that students were required to take standalone EBD courses when offered (Gu, 2010, p. 16).

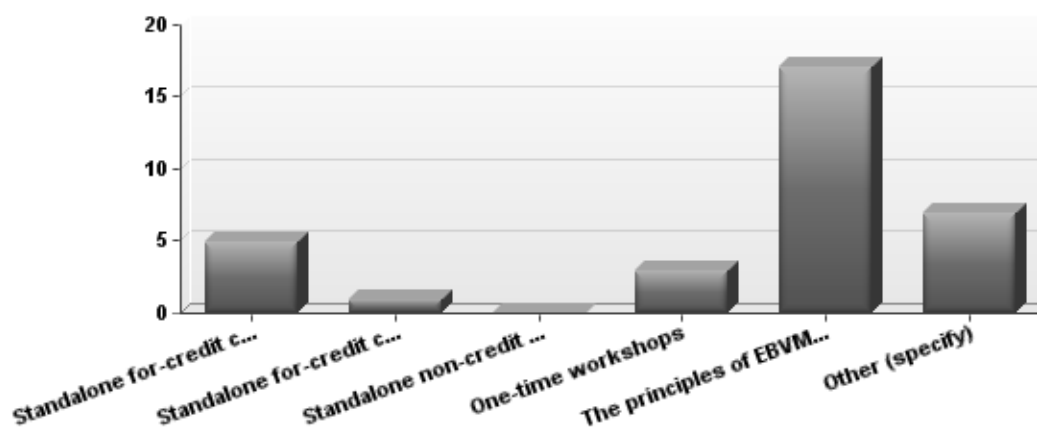


Figure 2: EBVM educational opportunities available for DVM students.

## Librarian Roles in Teaching EBVM Courses

A majority of the participants (52%, n=13/25) indicated that they are involved in teaching EBVM to veterinary students. The most frequently cited response was “offer students individual or group consultations upon request (92%, n=12/13). This was closely followed by “teach students EBVM literature searching skills” (85%, n=11/13). Other reported roles included “design or help design course syllabus” (31%, n=4/13), “train veterinary faculty on EBVM literature searching” (31%, n=4/13), “purchase new

materials or maintain specific materials to support the course” (46%, n=6/13), and “develop/maintain course-tailored instructional materials” (38%, n=5/13). One participant reported that they “serve on curriculum committee”.

Similarly, a majority of participating dental librarians in Gu's study indicated their involvement in teaching EBD courses (Gu, 2010, p. 17). The most frequently cited roles were also similar, with 97% of those involved in teaching EBD courses citing "teaching students EBD literature searching skills" and 88% citing "offering students individual or group consultations upon request" (Gu, 2010, p. 17).

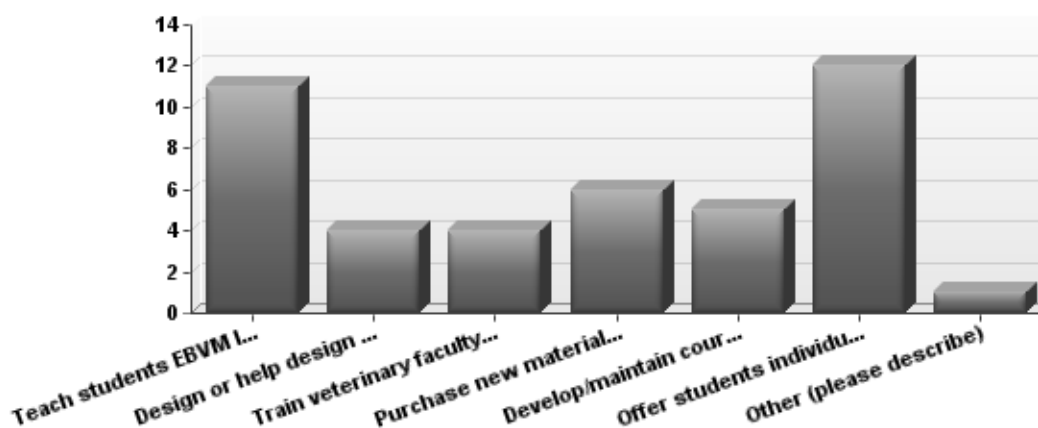


Figure 3: Librarian roles in teaching EBVM to veterinary students.

## Librarian Involvement in Other EBVM Services

Twenty-four out of 25 participants responded to the question regarding the provision of other services related to EBVM. The most frequently cited service was “offer veterinary students consultations on EBVM literature searching skills upon request” (63%, n=15/24). This was closely followed by “offer veterinary faculty consultations on EBVM literature searching skills upon request” (58%, n=14/24). Respondents also cited “offer workshops or short classes on EBVM literature searching skills” (21%, n=5/24).

and “develop/maintain instructional materials” (29%, n=7/24). Four participants indicated that they have no involvement in other services related to EBVM. Additional EBVM services reported by respondents included 1) giving EBVM talks at veterinary conferences and 2) providing an EBM session in a required clinical course.

The two most cited services by veterinary librarians were also the most cited services by dental librarians (Gu, 2010, p. 18). However, approximately half of the participating dental librarians responded that they developed or maintained instructional materials (Gu, 2010, p. 18).

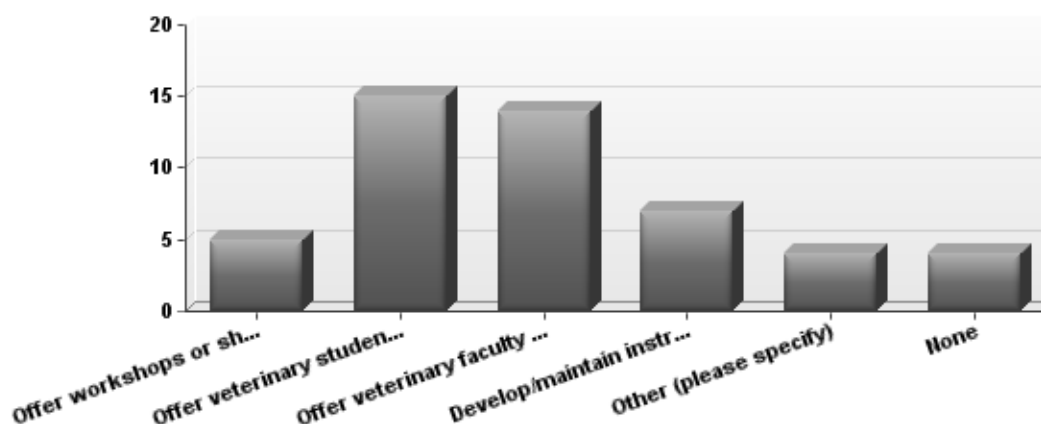


Figure 4: Librarian involvement in EBVM beyond teaching courses.

## Frequency of EBVM Literature Search Assistance

Ten respondents (42%, n=10/24) reported that they assisted students with EBVM literature searching at least once or twice a year. Three respondents (13%, n=3/24) reported that they assisted at least once or twice a month. Eleven respondents (46%, n=11/24) reported that they never assisted DVM students with EBVM literature searching.

Respondents reported similar frequencies of assisting veterinary faculty with EBVM literature searching. Nine respondents (38%, n=9/24) reported that they assisted at least once a year, four respondents (17%, n=4/24) reported that they assisted at least once or twice a month, and one respondent reported at least once or twice a week. Ten respondents (42%, n=10/24) reported that they had never assisted veterinary faculty with EBVM literature searching.

In Gu's study, 52% of the participating dental librarians indicated that they assisted DDS students with literature searching at least once or twice a year and 57% indicated that they assisted dental faculty with literature searching at least once or twice a year (Gu, 2010, p. 19).

### **Competency in Providing EBVM Services**

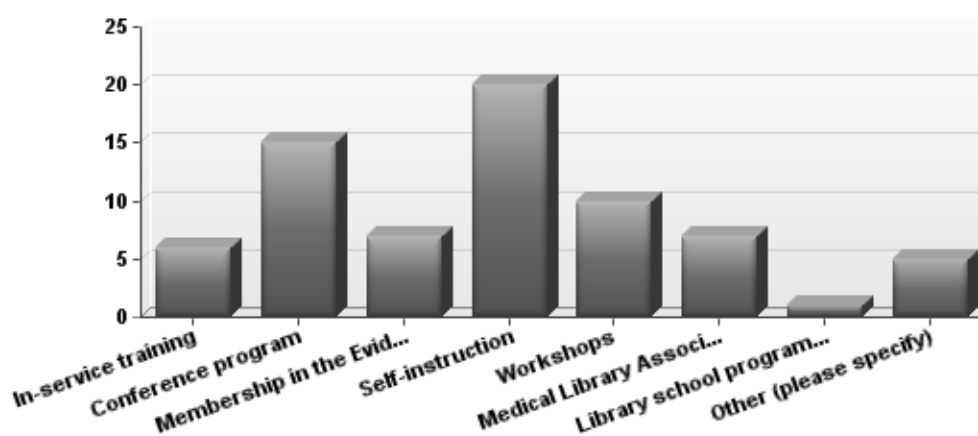
A majority of the participants (63%, n=15/24) felt competent in providing EBVM services. Of those who indicated that they did not feel competent in providing EBVM services, a content analysis of the open responses revealed that five respondents noted a lack of hands-on experience. Two cited a lack of knowledge, one cited competence in teaching general searching skills but did not feel qualified to teach critical appraisal, and one felt reasonably qualified in providing EBVM services.

Similarly, a majority of dental librarians reported feeling competent in providing EBD services (Gu, 2010, p. 20). All dental librarians who responded that they did not feel competent also noted that they lacked enough hands-on experience (Gu, 2010, p. 20).

### **Methods to Gain EBVM Knowledge**

Twenty-four out of 25 participants answered the question regarding methods used to gain EBVM knowledge. The most highly cited method was self-instruction (83%,

n=20/24), followed by the use of conference programs (63%, n=15/24) and workshops (42%, n=1-/24). Respondents also cited in-service training (25%, n=6/24), membership in the Evidence-Based Veterinary Medicine Association (EBVMA) Libraries' group (29%, n=7/24), use of Medical Library Association (MLA) Continuing Education (29%, n=7/24), and one respondent cited library school programs. Participants indicated other sources of EBVM knowledge, including EBVMA membership, collaboration with other health sciences librarians, and previous experience with or knowledge of EBM. Likewise, dental librarians most frequently cited self-instruction as a method of gaining EBD knowledge (Gu, 2010, p. 20).



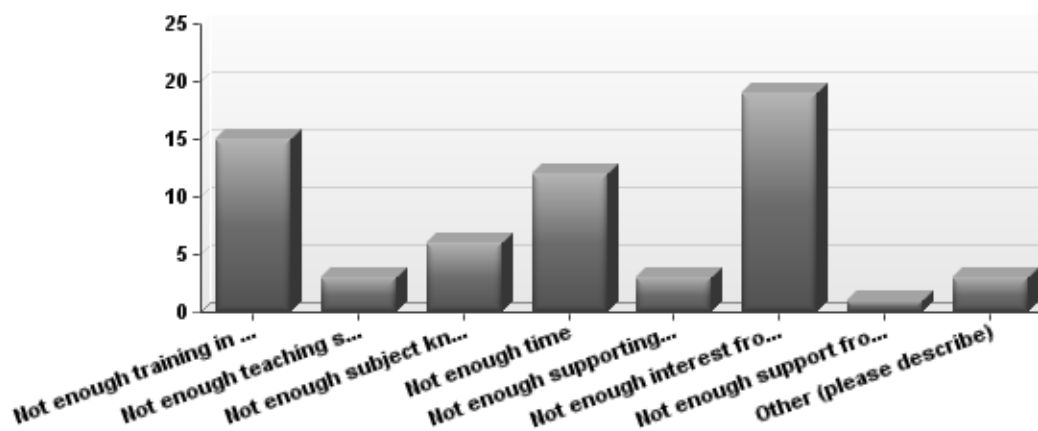
**Figure 5:** Methods used by librarians to gain EBVM knowledge.

## **Barriers to Involvement in EBVM Education**

### **Lack of interest from veterinary students and faculty**

Twenty-four out of 25 participants answered the question regarding barriers to desired level of involvement in EBVM education. The most frequently cited barrier was “not enough interest from the veterinary school or veterinary faculty” (79%, n=19/24), further elaborated on by three of the 12 participants who included additional comments in

the open-ended response question provided at the end of the survey. All three respondents mentioned that the veterinary profession does not seem to place the same emphasis on EBVM education as human medical schools place on EBM education. Two of these respondents also noted that there is little high-level evidence in EBVM when compared to EBM, and one respondent suggested that EBVM education is not considered a priority by veterinarians. Similarly, lack of interest from dental school or faculty was the most frequently cited barrier by participating dental librarians (Gu, 2010, pg. 21).



**Figure 6:** Barriers to librarian involvement in EBVM education.

### **Lack of training in EBVM skills**

Fifteen respondents indicated that “not enough training in EBVM” was a barrier. Six respondents cited “not enough subject knowledge” and three cited “not enough time” as barriers to their level of involvement in EBVM education. Three participants also indicated that “not enough teaching skills” was a barrier as well. When compared to the results found in Gu's study concerning dental librarians' desired level of involvement, veterinary librarians were less likely than dental librarians to indicate that teaching skills and subject knowledge were a barrier (Gu, 2010, p. 22).

### **Veterinary curriculum**

One participant noted that the crowded veterinary curriculum is a barrier to librarian involvement in EBVM education. In the final open-ended response, three participants had similar comments. One respondent noted that there is a “lack of information infrastructure supporting EBVM”. Two participating dental librarians made similar comments about the crowded dental school curriculum in Gu's open-ended response question (Gu, 2010, p. 23).

### **Other barriers**

Respondents also cited other barriers, including “not enough supporting staff”, and “not enough support from library administration in professional development” (Figure 6).

### **Perceptions of EBVM**

Twelve participants responded to the final open-ended response question. Their comments demonstrated a passion for and commitment to promoting EBVM education. One participant commented that their institution was “conscious of the need for EBVM thinking in their didactic instruction”. Six responses specifically indicated that EBVM is currently not as integrated into veterinary medicine as EBM is into human medicine. One participant commented on the importance of librarians receiving training in EBVM skills in order to better assist students and faculty, as “they are the ones who are in the best position to produce literature based on EBVM concepts”.

## **Discussion**

### **EBVM Survey Results**

Study participants came from 25 different institutions. Twenty-one participants were from the U. S. and 4 participants were from Canada. As there are 28 AVMA-accredited institutions that offer the DVM program in the U. S. and five in Canada, this study can be seen as representative of the veterinary profession in North America.

More than half of the participants have worked for more than six years at their current library. Many of the participants also indicated that they serve as the primary contact librarian for programs other than DVM. A majority of the respondents participate in EBVM education and feel competent in providing EBVM-related services. Of those that participate in teaching EBVM to veterinary students, many teach students EBVM literature searching skills during EBVM courses well as offer individual or group consultations upon request.

Besides being involved in teaching, veterinary librarians also fulfill other roles including the development and maintenance of instructional materials, individual student and faculty assistance in EBVM literature searching skills, and serving on curriculum committees. Veterinary librarians also provide EBVM related services that are not necessarily connected to an EBVM course offering. A majority of the participants offer both veterinary students and faculty consultations in EBVM literature searching skills upon request.



The current study found that the most cited barrier to desired level of involvement in EBVM by veterinary librarians was “not enough interest from the veterinary school or veterinary faculty”. This low level of interest may explain the low frequency of EBVM consultation requests. Despite a majority of veterinary librarians offering individual consultations, the most reported frequencies were “never” and “once or twice a year”.

Another barrier is a lack of training in EBVM skills. Both veterinarians and veterinary librarians need to develop new skills to implement EBVM (Scherrer & Dorsch, 1999). This suggests that continuing education opportunities need to be developed for veterinary librarians. The majority of participants cited self-instruction as a method used to gain knowledge of EBVM.

The veterinary profession has discussed potential barriers to the acceptance and practice of EBVM, including a smaller literature base to draw from in comparison to EBM and a lack of training in EBVM skills (Cockcroft & Holmes, 2003; Evidence-Based Veterinary Medical Association, 2010). Additionally, a recent pilot study suggests that practicing veterinarians themselves have positive attitudes towards EBVM but various barriers may prevent them from implementing it in practice (McKenzie, 2011).

Veterinary librarians who participated in the current study mentioned these obstacles identified by veterinary professionals. This suggests that veterinary librarians are up-to-date with the current status of EBVM in the veterinary profession.

Interest in EBVM is growing within the veterinary profession. Several of the respondents cited the existence of standalone courses in EBVM being offered at their institutions. While the majority of veterinary librarians felt competent in EBVM, many also responded that they did not have enough training in EBVM. Because of this and

because of the veterinary profession's continuing interest in EBVM, veterinary librarians may want to consider the development of EBVM continuing education opportunities.

### **Surveys of EBVM and EBD Librarians: A Comparison**

A striking similarity between the results of the current study and Gu's study is that the most cited barrier to involvement in EBVM or EBD for both veterinary librarians and dental librarians was a low level of interest from students and faculty, despite a majority of both groups offering individual consultations upon request (Gu, 2010). There were several other similarities, including: 1) a crowded curriculum, 2) a lack of training in EBD or EBVM skills, 3) most cited methods used to gain EBD or EBVM knowledge, 4) reported competency in providing EBD or EBVM services, and 5) involvement in teaching EBD or EBVM to students (Gu, 2010).

Several differences also exist between the results of the two studies. A majority of dental librarians had worked in their current library for more than 11 years. A larger percentage of dental librarians than veterinary librarians reported that teaching skills and subject knowledge was a barrier. Additionally, a larger percentage of dental librarians reported that students were required to take offered EBD courses (Gu, 2010).

Similarities may be related to a number of factors. Both EBD and EBVM have similar obstacles to implementation being discussed in their respective professions. There appears to be a "lack of high-quality evidence from high-quality clinical trials" (Gu, 2010). A participant in the current study similarly noted that "there's so little high-level evidence in EBVM" when compared to EBM.

## **Limitations**

This study has several limitations. The results of this survey are based on veterinary librarians reporting on their own involvement in EBVM education. It would be beneficial for future studies to gather data on how veterinary students and faculty perceive the roles of librarians in EBVM education. Another possible limitation is that multiple choice questions can restrict responses or influence a participant's thinking process. Optional text entry answers were provided when applicable. The survey also concluded with an open-ended response question to allow participants to include additional comments.

## **Conclusion**

Twenty-five veterinary librarians from 32 different institutions in the U. S. and Canada participated in this study. Despite a low level of interest in EBVM from some veterinary schools and students, veterinary librarians are committed to supporting EBVM and are actively pursuing additional educational opportunities for themselves in EBVM skills. In the majority of the participants' institutions, the librarians felt competent in their provision of EBVM services, while also serving in other roles. Veterinary librarians are cognizant of the challenges facing their involvement in EBVM education and are enthusiastically pursuing multiple avenues for involvement. Similarities were found between the results of the current study and Gu's 2010 study of dental librarian involvement in EBD education, suggesting that perhaps similar training opportunities could be designed for these disciplines.

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## Appendix

### Appendix A. Roles for Librarians in EBVM: Survey Questions

How long have you been working in your current library?

- ☐ 0-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ 11 or more years

Do you also serve as the primary contact librarian for programs other than veterinary medicine within your institution?

- ☐ Yes
- ☐ No

Now I will ask you some questions about your involvement with Evidence-Based Veterinary Medicine Education.

Which of the following EBVM educational opportunities are available for veterinary students in your institution?

- ☐ Standalone for-credit course (selective)
- ☐ Standalone for-credit course (elective)
- ☐ Standalone non-credit course
- ☐ One-time workshops
- ☐ The principles of EBVM are integrated throughout the curriculum
- ☐ Other (specify)

Are the EBVM students in your institution required to take the standalone EBVM course?

*Note: Only asked if answered yes to standalone course.*

- ☐ Yes
- ☐ No
- ☐ Do not know

Are you involved in teaching EBVM to veterinary students in your institution?

- ☐ Yes
- ☐ No

What are your roles in teaching EBVM to veterinary students in your institution? Answer yes to all that apply.

*Note: Only asked if answered yes to previous question.*

- ☐ Teach students EBVM literature searching skills
- ☐ Design or help design course syllabus
- ☐ Train veterinary faculty on EBVM literature searching
- ☐ Purchase new materials or maintain specific materials to support the course
- ☐ Develop/maintain course-tailored instructional materials
- ☐ Offer students individual or group consultations upon request
- ☐ Other (please describe)

Do you provide any other services related to EBVM? Please select all that apply.

- ☐ Offer workshops or short classes on EBVM literature searching skills
- ☐ Offer veterinary students consultations on EBVM literature searching skills upon request
- ☐ Offer veterinary faculty consultations on EBVM literature searching skills upon request
- ☐ Develop/maintain instructional materials
- ☐ Other (please specify)
- ☐ None

How often do you assist veterinary students with EBVM literature searching?

- ☐ Never
- ☐ At least once or twice a year
- ☐ At least once or twice a month
- ☐ At least once or twice a week
- ☐ More often than once or twice a week

How often do you assist veterinary faculty with EBVM literature searching related to instruction?

- ☐ Never
- ☐ At least once or twice a year
- ☐ At least once or twice a month
- ☐ At least once or twice a week
- ☐ More often than once or twice a week

How often do you assist veterinary faculty with EBVM literature searching related to their own clinical work?

- ☐ Never
- ☐ At least once or twice a year
- ☐ At least once or twice a month
- ☐ At least once or twice a week
- ☐ More often than once or twice a week

Do you feel competent providing EBVM-related services?

- ☐ Yes
- ☐ No (If so, please provide reasons)

Finally, we will ask you some questions about your training and perspectives on Evidence Based Veterinary Medicine (EBVM).

What method have you used to gain knowledge on EBVM? Please choose all that apply.

- ☐ In-service training
- ☐ Conference program
- ☐ Membership in the Evidence Based Veterinary Medicine Association Libraries' group
- ☐ Self-instruction
- ☐ Workshops
- ☐ Medical Library Association (MLA) Continuing Education
- ☐ Library school programs
- ☐ Other (please specify)

Please indicate which, if any, of the following pose barriers to your desired level of involvement in EBVM education in your institution. Please choose all that apply.

- ☐ Not enough training in EBVM
- ☐ Not enough teaching skills
- ☐ Not enough subject knowledge
- ☐ Not enough time
- ☐ Not enough supporting staff
- ☐ Not enough interest from the veterinary school or veterinary faculty
- ☐ Not enough support from library administration in professional development
- ☐ Other (please describe)

Please mention any additional comments about librarian involvement in EBVM education, e.g. importance, future directions, education needs, etc.

## **APPENDIX B: FIRST EMAIL**

Dear {FirstName},

I would like to invite you to participate in a research study on the role of librarians in evidence-based veterinary medicine (EBVM) education. I am currently pursuing an MSLS degree at the School of Information and Library Science at University of North Carolina at Chapel Hill (UNC-CH). I am conducting this research study for my Master's Paper and have a strong interest in veterinary librarianship.

The research study's objectives are as follows:

- a. To describe U.S. and Canadian veterinary librarian's perception and knowledge of evidence-based veterinary practice.
- b. To describe if and how they are involved in EBVM education for veterinary faculty and students.

I will be emailing the survey to you this week and it should take about 5 minutes to complete.

Your responses to this survey will be kept strictly confidential and only aggregate data will be shared. No individual responses will be identified.

Researcher: Amanda Rowley Vinogradov rowleyag@email.unc.edu

Supervisor: Dr. Joanne Marshall, Faculty Advisor marshall@ils.unc.edu

Sincerely,

Amanda Rowley Vinogradov

## APPENDIX C: SECOND EMAIL

Dear \${m://FirstName},

I would like to ask you to participate in a research study about the role of librarians in supporting evidence-based veterinary medicine education. I am a student from the University of North Carolina at Chapel Hill, completing my Master's degree from the School of Information and Library Science. I am conducting this study for my Master's paper under the supervision of Dr. Joanne Marshall.

Your participation in this survey is completely voluntary.

The purpose of this research study survey is to look at the roles of librarians in evidence-based veterinary medical education. By sharing your experiences and opinions, you will contribute to a greater understanding of the role of librarians in EBVM education. This understanding could lead to the development of future continuing education opportunities for veterinary librarians. We estimate that approximately 30 people will enroll in this study.

You **cannot** return to previous pages after you click the submit button found on each page. If you are interrupted or need a break, you can resume the survey at a later time by clicking on the link found in this email.

### Follow this link to the Survey:

[\\${l://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${l://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${l://OptOutLink}](#)

Responding to the survey indicates your consent to participate in the study. You don't have to answer any questions that you don't feel like answering. You can choose to not answer any question at any time for any reason. **Your responses will be kept strictly confidential and only aggregate data will be shared. No individual responses will be identified.** There are no anticipated risks or benefits to you. However, there will be benefits to society in general.

You can also call me at 479-264-3656 with questions about the research study.

Summaries of the study results will be available in my Masters Paper, which will be accessible from <http://sils.unc.edu/itrc/mpi/after> I graduate.

All research on human volunteers is reviewed by a committee at UNC that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to [IRB\\_subjects@unc.edu](mailto:IRB_subjects@unc.edu).

Thank you,

Amanda Rowley Vinogradov



## APPENDIX D: THIRD EMAIL

Dear \${m://FirstName},

I'm writing to remind you of the unique research study I am conducting on the role of librarians in evidence-based veterinary medicine education. I would like to encourage you to participate in the study and respond to the survey as soon as possible. Your participation in this survey is completely voluntary.

The purpose of this research study survey is to look at the roles of librarians in evidence-based veterinary medicine education. By sharing your experiences and opinions, you will contribute to a greater understanding of the role of librarians in EBVM education. This understanding could lead to the development of future continuing education opportunities for veterinary librarians. We estimate that approximately 30 people will enroll in this study.

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You can also call me at 479-264-3656 with questions about the research study. Summaries of the study results will be available in my Masters Paper, which will be accessible from <http://sils.unc.edu/itrc/mpi/after> I graduate.

All research on human volunteers is reviewed by a committee at UNC that works to

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Thank you,  
Amanda Rowley Vinogradov

## APPENDIX E: FOURTH EMAIL

Dear \${m://FirstName},

I'm writing to remind you of the unique research study I am conducting on the role of librarians in evidence-based veterinary medicine education. I would like to encourage you to participate in the study and respond to the survey as soon as possible. **This survey will be closed by 12:00 pm (Central Standard Time) Friday, March 3rd.** Your participation in this survey is completely voluntary.

The purpose of this research study survey is to look at the roles of librarians in evidence-based veterinary medicine education. By sharing your experiences and opinions, you will contribute to a greater understanding of the role of librarians in EBVM education. This understanding could lead to the development of future continuing education opportunities for veterinary librarians. We estimate that approximately 30 people will enroll in this study.

You **cannot** return to previous pages after you click the submit button found on each page. If you are interrupted or need a break, you can resume the survey at a later time by clicking on the link found in this email.

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You can also call me at 479-264-3656 with questions about the research study. Summaries of the study results will be available in my Masters Paper, which will be accessible from <http://sils.unc.edu/itrc/mpi/after> I graduate.

All research on human volunteers is reviewed by a committee at UNC that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to [IRB\\_subjects@unc.edu](mailto:IRB_subjects@unc.edu).

Thank you,  
Amanda Rowley Vinogradov